

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
690 Walnut Ave.St. 150  
Vallejo, CA 94592-1133  
(707) 649-5453  
(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-001945**Date Inspected:** 24-Mar-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG/Tower**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector Sherri Brannon arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China to periodically monitor welding and Quality Control (QC) functions. While on site the QA Inspector observed and/or discovered the following.

**OBG/Tower Assembly****Bay 7-OBG - Floor Beam Sub Assembly:**

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Ren Jinzhu ID #044837 fillet welding floor beam diaphragm web plate flange plate for FB014-03-028. Mr. Ren was observed welding in the 2F (horizontal) position utilizing a shielded metal arc welding (SMAW) process with a 5.0mm diameter electrode, filler metal brand E7018, manual. QA Inspector Brannon observed the ZPMC QC CWI Inspector Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Hu Wei Qing to be: preheat temperature of 60°C and welding parameters amps of 224 mm/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-P-2112-FCM.

**Bay 7-OBG - Floor Beam Sub Assembly:**

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Liu Long Xian ID #044786 fillet welding floor beam diaphragm web plate flange plate for FB014-03-008 & 013. Mr. Liu was observed welding in the 3F (vertical) position utilizing a flux corded arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic. QA Inspector Brannon observed the ZPMC QC CWI

---

## WELDING INSPECTION REPORT

( Continued Page 2 of 3 )

---

Inspector Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Mr. Hu Wei Qing to be: preheat temperature of 60°C and welding parameters amps of 201, volts of 24.8, a travel speed of 110 mm/min and a gas flow of 22L/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2133.

Bay 7-OBG - Floor Beam Sub Assembly: CWR040

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Zhang Qingquan ID #044774 repair welding floor beam flange to web for FB016-02-003. Mr. Zhang was observed welding in the 2G (horizontal) position utilizing a flux corded arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic. QA Inspector Brannon observed the ZPMC QC CWI Inspector Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Mr. Hu Wei Qing to be: Interpass temperature of 173°C and welding parameters amps of 295, volts of 29.5, a travel speed of 301 mm/min and a gas flow of 21L/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-345-FCAW-2G(2F)-Repair-1.

Bay 7-OBG - Floor Beam Sub Assembly: B-WR131

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Dan De Yin ID #044795 repair welding floor beam flange to web for FB018-01-148. Mr. Dan was observed welding in the 2G (horizontal) position utilizing a flux corded arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand E71T-1, class Supercored 71H, semi automatic. QA Inspector Brannon observed the ZPMC QC CWI Inspector Hu Wei Qing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Mr. Hu Wei Qing to be: Interpass temperature of 112°C and welding parameters amps of 283, volts of 28.0, a travel speed of 520 mm/min and a gas flow of 21L/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-345-FCAW-2G(2F)-Repair-1.

Bay 7-OBG - Floor Beam Sub Assembly: (repair CWR038)

QA Inspector Brannon randomly observed ZPMC personnel at FB007-02-043 excavating an ultrasonic testing (UT) indication by method of carbon arc gouging. See ZPMC UT report number B787-UT-142R2.

Bay 8-Tower Diaphragm Sub Assembly:

QA Inspector Brannon randomly observed ZPMC qualified welder Mrs. Ma Ying ID #045270 groove welding fill pass's joining SA270 (N) to P249 (N) weld joint NSD1 SA270 -1A/1B. Mrs. Ma was observed welding in the 1G (flat) position utilizing a submerged arc welding (SAW) process with a 4.8mm diameter electrode, filler metal brand EM12k, class JW3 machine.. QA Inspector Brannon observed the ZPMC QC CWI Inspector Sha Zhi verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector observed preheat and welding parameters measured by the QC CWI Inspector Sha Zhi to be: preheat temperature of 180°C and welding parameters amps of 611, volts of 31.1, and a travel speed of 482 mm/min. Welding parameters observed by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-3221-B-U3c-S-1.

Tower Shop

---

## WELDING INSPECTION REPORT

( Continued Page 3 of 3 )

---

ZPMC NDT (MT):

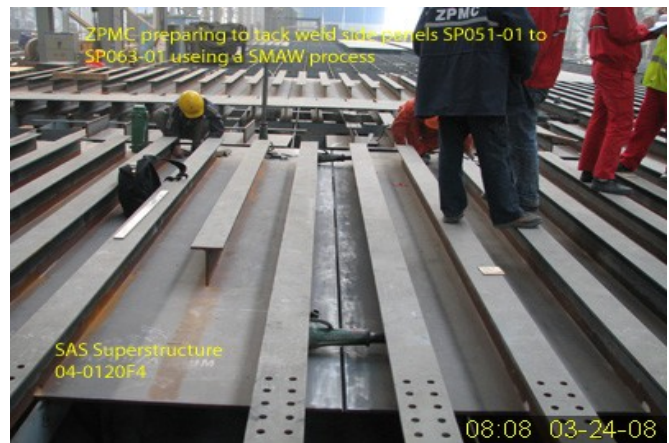
QA Inspector Brannon observed ZPMC magnetic particle (MT) technician's Mr. Bo Ting Rui, Mr. Zhou Dong Yun and Mr. Cai Xin Xin performing (MT) at the 89 Meter Mock-Up Shear Link MuSB-MA26. Mr. Bo stated to QA Inspector that he found no linear indication.

OBG Assembly Shop

Bay 2 – OBG Assembly Shop:

QA Inspector Brannon observed ZPMC personnel at Seg014A-018 joining SP064-01 to SP052-01 and Seg014A joining SP063-01 to SP051-01 Side Plate CJP splice fit-up work in progress. QA Inspector Brannon observed that ZPMC is continuing the fit up of side plate splices that will join three sub-assemblies into one piece. The observed CJP splice is being fit-up for the use of a single vee groove that utilizes ceramic backing. The approved ZPMC WPS reflects a 6mm maximum root opening.

The following digital photograph below illustrates observation of the activities being performed.



### Summary of Conversations:

As stated within the report.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

---

**Inspected By:** Brannon, Sherri

Quality Assurance Inspector

---

**Reviewed By:** Cuellar, Robert

QA Reviewer